

CLAIMS

I claim:

1 1. A welding power source capable of
2 receiving a range of input voltages, comprising:
3 an input rectifier configured to receive an ac
4 input and providing a first dc signal;
5 a dc voltage stage configured to receive the
6 first dc signal and providing a second dc signal;
7 an inverter configured to receive the second dc
8 signal and providing a second ac signal and
9 configured to receive at least one control input;
10 an output transformer configured to receive the
11 second ac signal and providing a third ac signal
12 having a current suitable for welding;
13 an output circuit configured to receive the
14 third ac signal and providing a welding signal;
15 a controller configured to provide at least one
16 control signal to the inverter; and
17 an auxiliary power controller configured to
18 receive a range of input voltages and providing a
19 control power signal to the controller.

1 2. The apparatus of claim 1, wherein the
2 auxiliary power controller is capable of providing the
3 control power signal at a preselected control signal
4 voltage, regardless of the magnitude of the ac input
5 signal.

1 3. The apparatus of claim 2, further
2 including an auxiliary transformer with a plurality of
3 primary taps, wherein the auxiliary power controller is
4 in electrical communication with the plurality of primary
5 taps.

1 4. The apparatus of claim 1, wherein the dc
2 voltage stage includes a boost circuit.

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1 5. The apparatus of claim 1, wherein the
2 inverter includes a pulse width modulator.

1 6. The apparatus of claim 1, wherein the
2 range of input voltages is 230 volts to 575 volts.

1 7. The apparatus of claim 1 wherein the
2 output circuit includes a rectifier.

1 8. The apparatus of claim 1 wherein the
2 output circuit includes a cycloconverter.

1 ✓ 9. A method of providing a welding current
2 from a range of input voltages, comprising:
3 rectifying an ac input and providing a first dc
4 signal;
5 converting the dc signal to a second ac signal;
6 transforming the second ac signal into a third
7 ac signal having a current suitable for welding; and
8 receiving the ac input and providing an
9 auxiliary power signal source at a preselected
10 control power signal voltage, regardless of the
11 magnitude of the ac input signal.

1 10. The method of claim 9, wherein the step of
2 converting the dc signal includes the steps of converting
3 the dc signal to a second dc signal and inverting the
4 second dc signal to provide the second ac signal.

1 11. The method of claim 9 further including
2 the step of providing control signals to an inverter.

1 12. The method of claim 9, wherein the step of
2 providing the auxiliary power signal includes the step of
3 transforming the ac input signal.

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1 13. The method of claim 10, wherein the step
2 of converting the first ~~dc~~ signal to a second dc signal
3 includes boosting the voltage of the first dc signal.

1 14. The method of claim 10, wherein the step
2 of inverting includes the step of pulse width modulating.

1 15. The method of claim 10 further including
2 the step of rectifying the third ac signal.

1 16. The method of claim 10 further includes
2 the step of cycloconverting the third ac signal.

1 17. A welding power source for providing a
2 welding current from a range of input voltages,
3 comprising:

4 rectifier means for receiving an ac input and
5 providing a first dc signal;

6 converting means for converting the dc signal
7 to a second ac signal;

8 transforming means for transforming the second
9 ac signal into a third ac signal having a current
10 suitable for welding;

11 output means for providing a welding current;
12 and

13 auxiliary power means for receiving the ac
14 input and providing an auxiliary power signal at a
15 preselected control power signal voltage, regardless
16 of the magnitude of the ac input signal.

1 18. The apparatus of claim 17, wherein the
2 means for converting includes means for converting the dc
3 signal to a second dc signal and means for inverting the
4 second dc signal to provide the second ac signal.

1 19. The apparatus of claim 18 further
2 including means for providing control signals to an
3 inverter.

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20. The apparatus of claim 17, wherein the means for providing the auxiliary power signal includes means for transforming the ac input signal into the auxiliary power signal.

21. The apparatus of claim 17, wherein the means for converting the dc signal to a second dc signal includes means for boosting the voltage.

22. The apparatus of claim 17, wherein the means for inverting includes means for pulse width modulating.

23. The apparatus of claim 17, wherein the output means includes means for rectifying the third ac signal.

24. The apparatus of claim 17, wherein the output means includes means for cycloconverting the third ac signal.

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